

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re the Application of

Pettitt (TI-28576)

Serial No. 09/945,295

Filed: August 31, 2001

For: Automated Color Matching for Tiled Projection System

Conf. No. 2019

Group Art Unit: 2624

Examiner: Hung

**REQUEST FOR RECONSIDERATION**

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Dear Sir:

This paper is presented in response to the Office Action mailed on July 9, 2008. It is submitted that this paper is fully responsive to that Office Action. Reconsideration of this application, based on the following remarks, is respectfully requested.

Claims 1, 4 through 13, 16, and 18 remain in this case. No claim is amended.

Claim 1 was finally rejected under §103 as unpatentable over the Oguchi et al. reference<sup>1</sup> in view of the Ohta et al. reference<sup>2</sup>. Claims 4, 10, 12, 13, and 16 were rejected under §103 as unpatentable over the Oguchi et al. and Ohta et al. references, and further in view of the DeMond et al. patent<sup>3</sup>. Claim 5 was rejected under §103 as unpatentable over the Oguchi et al. and Ohta

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<sup>1</sup> U.S. Patent No. 6,340,976 B1, issued January 22, 2002 to Oguchi et al., from an application filed August 17, 1999 via PCT International Application PCT/JP98/01709 filed April 15, 1998.

<sup>2</sup> U.S. Patent No. 5,917,939, issued June 29, 1999 to Ohta et al.

<sup>3</sup> U.S. Patent No. 5,079,544, issued January 7, 1992 to Demond et al.

et al. references, and further in view of the Onuma et al. reference<sup>4</sup>. Claim 6 was rejected under §103 as rejected under §103 as unpatentable over the Oguchi et al. and Ohta et al. references, and further in view of the Noguchi reference<sup>5</sup>. Claim 7 was rejected under §103 as rejected under §103 as unpatentable over the Oguchi et al. and Ohta et al. references, and further in view of the Yoshikuni reference<sup>6</sup>. Claims 8 and 9 were rejected under §103 as rejected under §103 as unpatentable over the Oguchi et al. and Ohta et al. references, and further in view of the Appel reference<sup>7</sup>. Claim 11 was rejected under §103 as rejected under §103 as unpatentable over the Oguchi et al. and Ohta et al. references, and further in view of the Gibson reference<sup>8</sup>. Claim 18 was rejected under §103 as unpatentable over the Oguchi et al., Ohta et al., and Demond et al. references, and further in view of the Gibson reference.

Regarding claim 1 and its dependent claims, the Examiner admitted that the Oguchi et al reference does not disclose that each projector stores its chromaticity data and luminance data. The Examiner found, however, that the Ohta et al. reference discloses storing the device color reproduction range, and that these teachings would have been obviously combined with those of the Oguchi et al. reference because both are in the same field of endeavor, namely color correction, and that the skilled person would have made this combination to allow automated calculation of color correction data and save the cost of the chromaticity sensors.

Applicant traverses the §103 rejection of claim 1 and its dependent claims, on the grounds that the Examiner has failed to present a *prima facie* obviousness determination regarding those claims. To properly support a determination that it would have been obvious to combine known prior art elements to reach the claimed invention, there must be a finding that all of the claimed elements were known in the prior art and that it would have been obvious to the person of ordinary skill in the art to have made that combination.<sup>9</sup> Applicant submits that the

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<sup>4</sup> U.S. Patent No. 5,287,173, issued February 15, 1994 to Onuma et al.

<sup>5</sup> U.S. Patent No. 6,101,272, issued August 8, 2000.

<sup>6</sup> English language abstract of Japan Patent Publication 02-001351, dated January 5, 1990, based on an application filed by Yoshikuni.

<sup>7</sup> U.S. Patent No. 5,337,410, issued August 9, 1994 to Appel.

<sup>8</sup> U.S. Patent No. 5,253,043, issued October 12, 1993 to Gibson.

<sup>9</sup> *KSR International Co. v. Teleflex Inc et al.*, 550 U.S. \_\_\_, 127 S.Ct. 1727, 167 L.Ed.2d 705, 75 USLW 4289, 82 U.S.P.Q.2d 1385, (2007); *In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ3d 1614 (Fed. Cir. 1999). See also MPEP §2143 (A) (in the context of the requirements for a *prima facie* case of obviousness).

combination of the Oguchi et al. and Ohta et al. references falls short of the requirements of claim 1, and that the Examiner has not asserted that, much less how, the skilled artisan would have modified those teachings to make up that shortfall.

Claim 1 requires the providing of at least two projectors, each having chromaticity data and luminance data stored therein, in combination with the communicating of that stored chromaticity and luminance data to a main controller. As admitted by the Examiner, the Oguchi et al. reference fails to disclose the storing of chromaticity and luminance data by the projectors. But Applicant submits that the Ohta et al. reference also fails to disclose the storing of these data by the projectors.

The location of the Ohta et al. reference cited by the Examiner<sup>10</sup> as teaching the storing of color reproduction range does not teach the storing of chromaticity and luminance data by the devices.<sup>11</sup> Rather, the Ohta et al. reference teaches the storing of these data in the memory 1106 of the “image processing apparatus”, which according to the Ohta et al. reference, is not the output device (*i.e.*, does not correspond to a projector of claim 1) but is instead the device that performs the color processing of the data to be output (*i.e.*, corresponds at most to the main controller of claim 1).<sup>12</sup> Therefore, even if one combines the teachings of the Ohta et al. reference with those of the Oguchi et al. reference, that combination will still fall short of the requirements of claim 1, because neither of those references teach storing chromaticity and luminance data at the projectors.

At the risk of inviting improper hindsight analysis by the Examiner, Applicant submits that a proper *prima facie* obviousness determination of claim 1, based on the Oguchi et al. and Ohta et al. references must either include an assertion that one of those references teach the storing of chromaticity and luminance data at the projectors (which they do not), or an assertion,

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<sup>10</sup> Office Action of July 9, 2008, page 4, *citing* Ohta et al., *supra*, column 21 lines 7 through 25 (“especially lines 20-23”).

<sup>11</sup> And if one carefully reads the Examiner’s assertion, it becomes apparent that the Examiner does not expressly state that it teaches storing of the data *by the devices*:

However, Ohta discloses storing device color reproduction range (considered a colorimetric profile) needed for producing accurate color in that device.

Office Action, *supra*, page 4.

<sup>12</sup> Ohta et al., *supra*, column 20, line 62 through column 21, line 25; *see also* column 3, lines 61 and 62.

based on “some articulated reasoning with some rational underpinning”, that it would have been obvious to modify these combined teachings to store the data at the projectors.<sup>13</sup> Neither is present in the Office Action.

Secondly, Applicant submits that, in fact, it would not have been obvious to modify the combined teachings of the Oguchi et al. and Ohta et al. references, properly interpreted, in such a manner as to reach claim 1. As noted above, the combination of these references falls short of claim 1, by not disclosing that the chromaticity and luminance data are stored at each of at least two projectors. The Oguchi et al. reference provides no hint of such storing, especially considering its chromaticity sensors as deployed at the screen. The Ohta et al. reference also lends no suggestion in this regard, considering that it does not disclose a projector as one of its output devices. Indeed, a projector could not even be used in connection with the Ohta et al. color image processing approach. This is apparent from the Ohta et al. approach to color correction, in which “patches” are printed, read into an input unit of the image processing system, and the results used in the disclosed color mapping process.<sup>14</sup> A projector clearly cannot produce the “patches” used by the Ohta et al. system in its color correction, as its output is ephemeral.<sup>15</sup> Accordingly, suggestion to modify the combined teachings of the Oguchi et al. and Ohta et al. references is necessarily lacking in those references themselves, nor do the other applied references provide any teaching, suggestion, or motivation in this regard.

The important advantages attained by the method of claim 1 also support a finding that the claimed method is inventive over the Oguchi et al. and Ohta et al. references, properly interpreted and combined, as well as the other prior art of record. These advantages include the ability for the system to automatically adjust the color pixel data for a projector that is newly installed into a multiple-projector tiled projection display system, because the data is stored in each projector and communicated to the main controller.<sup>16</sup> Replacement of one projector with another, or original installation of the projectors, can thus be easily and efficiently performed,

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<sup>13</sup> *KSR, supra*, slip op. at 14.

<sup>14</sup> Ohta et al., *supra*, column 21, lines 1 through 9.

<sup>15</sup> Requiring use of a chromaticity sensor, as taught by Oguchi et al.

<sup>16</sup> See specification of S.N. 09/945,295, as published as U.S. Patent Application Publication No. 2002/041708 A1, paragraph [0008].

with the resulting multiple-tile image automatically adjusted. This advantage stems directly from the differences between claim 1 and the prior art, and indeed is not possible according to the Ohta et al. teachings, which rely on the printing, reading, and processing of printed “patches” as discussed above. This substantial difference between Applicant’s invention and the prior art indicates that a person of ordinary skill in the art would not have obviously arrived at the claimed method using his or her ordinary creativity,<sup>17</sup> and thus supports a finding that the claimed method is inventive over these references.

For these reasons, Applicant submits that the rejection of claim 1 and its dependent claims 4 through 11 is in error, and submits that these claims are in fact patentably distinct over the applied references.

Applicant also traverses the §103 rejection of claim 12 and its dependent claims, on the grounds that the combined teachings of the applied references fall short of the requirements of the claims, and that there is no basis for determining that these teachings would be obviously modified so as to reach those claims.

The rejection of claim 12 is based on similar grounds as discussed above relative to claim 1, in that the Oguchi et al reference does not disclose that each projector stores its chromaticity data and luminance data, but that the Ohta et al. reference discloses the storing of the device color reproduction range. The DeMond et al. reference was applied as teaching that the projectors each include a spatial light modulator and color wheel, etc.<sup>18</sup> No specific motivation for combining these various teachings to arrive at independent claim 12 was presented in the Office Action, and as such it is contemplated that the Examiner considers the motivation stated in the rejection of claim 1 to suffice in this regard.

Applicant traverses the §103 rejection of claim 12 and its dependent claims, on similar grounds as discussed above, namely that the Examiner has failed to present a *prima facie* obviousness determination regarding these claims. In this regard, Applicant submits that the combination of the Oguchi et al., Ohta et al., and DeMond et al. references falls short of the

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<sup>17</sup> *KSR, supra.*

<sup>18</sup> Office Action, *supra*, page 6.

requirements of claim 1, and that there is no reasoned statement that, much less how, the skilled artisan would have modified those teachings to arrive at the system of claim 12.

Claim 12 is directed to a display system comprised of a main controller and at least two projectors. The at least two projectors each comprise a memory for storing chromaticity data and luminance data for that projector, and the main controller is recited as coupled to those projectors to receive the stored chromaticity and luminance data therefrom.

Neither of the Oguchi et al. and DeMond et al. references was asserted as teaching the storing of chromaticity and luminance data at the projectors, and in fact neither does so teach. Applicant submits, however, that the Ohta et al. reference also fails to disclose the storing of colorimetric data of any sort at its output device. The Ohta et al. reference instead teaches the storing of such data in memory of the image processing apparatus that is performing the color corrections, which thus corresponds at best to the main controller in the system of claim 12. The combination of the Ohta et al. teachings with those of the Oguchi et al. and DeMond et al. references will therefore necessarily fall short of the requirements of claim 12, because there is no disclosure in any of those references of the storing of any colorimetric data in any output device. Indeed, the Examiner avoids directly asserting that such data are stored at the output devices. Accordingly, because neither a proper and correct assertion that one of the applied references teach this limitation, nor “some articulated reasoning with some rational underpinning” that it would have been obvious to modify these combined teachings to store the data at the output devices,<sup>19</sup> is present in the Office Action, proper *prima facie* obviousness determination relative to claim 12 and its dependent claims is lacking in this case.

Applicant further submits that, in fact, it would not have been obvious to modify the combined teachings of the Oguchi et al., DeMond et al., and Ohta et al. references, properly interpreted, in such a manner as to reach claim 12. As discussed above, the applied references fail to disclose at least two projectors that each comprise a memory for storing chromaticity and luminance data for that projector. And specifically regarding the Ohta et al. reference, this reference does not even disclose a projector as one of its output devices, because its color image

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<sup>19</sup> *KSR, supra*, slip op. at 14.

processing depends on printed “patches” of color from its various printers, such that its image processing system can analyze the colors of those patches to arrive at a color mapping.<sup>20</sup> A projector is simply not compatible with this approach. Therefore, Applicant submits that there is suggestion from the prior art, including the other cited references of record, to modify the combined teachings of the Oguchi et al., DeMond et al., and Ohta et al. references so as to reach claim 12 and its dependent claims.

The system of claim 12 provides the important advantages discussed above relative to claim 1, particularly by enabling the automatic adjustment of color pixel data.<sup>21</sup> This automatic adjustment facilitates the setup of a new tiled multi-projector system, as well as the replacement of one projector in such a tiled array of projectors. Because this advantage stems directly from the differences between the claimed system and the prior art, it is apparent that the difference between Applicant’s invention and the prior art is substantial, and would not have been obvious to a person of ordinary skill in the art using his or her ordinary creativity.<sup>22</sup> Applicant therefore submits that the system of claim 12 and its dependent claims is inventive over the applied references.

Applicant therefore submits that the rejection of claim 12 and its dependent claims 13, 16, and 18 is in error, and submits that these claims are in fact patentably distinct over the applied references.

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<sup>20</sup> Ohta et al., *supra*, column 21, lines 1 through 9.

<sup>21</sup> See specification of S.N. 09/945,295, as published as U.S. Patent Application Publication No. 2002/041708 A1, paragraph [0008].

<sup>22</sup> *KSR, supra*.

For these reasons, Applicant respectfully submits that the claims in this case are in condition for allowance. Reconsideration of this application is therefore respectfully requested.

Respectfully submitted,

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